

**OCEANIC AND ATMOSPHERIC RESEARCH
OPERATIONS RESEARCH AND FACILITIES
FY 2007 OVERVIEW**

SUMMARIZED FINANCIAL DATA

(\$ in thousands)

Operations Research and Facilities	FY 2005 ACTUALS	FY 2006 CURRENTLY AVAILABLE	FY 2007 BASE PROGRAM	FY 2007 ESTIMATE	INCREASE / DECREASE
Climate Research	177,311	169,584	163,442	181,151	17,709
Weather and Air Quality Research	50,890	67,570	36,796	41,230	4,434
Ocean, Coastal, and Great Lakes Research	146,826	126,676	94,347	102,976	8,629
Information Technology and R&D	29,079	6,411	6,442	12,916	6,474
TOTAL	404,106	370,241	301,027	338,273	37,246
FTE	689	710	714	714	0

For FY 2007, NOAA requests a total of \$338,273,000 for the Office of Oceanic and Atmospheric Research Operations, Research and Facilities (ORF), a net increase of \$37,246,000.

The primary center for research and development within NOAA is the Office of Oceanic and Atmospheric Research (OAR), also referred to as NOAA Research. The major research themes are Climate Research; Weather and Air Quality Research; Ocean, Coastal and Great Lakes Research; and Information Technology, Research and Development (R&D). The goal of Climate Research is the greater understanding of the climate system to improve predictions on subseasonal through decadal time scales. The goal of Weather and Air Quality Research is to better understand and forecast atmospheric events that endanger lives and property. The goal of Ocean, Coastal and Great Lakes Research is to develop innovative management tools through a better understanding of our ocean and Great Lakes habitats and resources. The goals of Information Technology, Research and Development, and Science Education are to accelerate the adoption of advanced computing, communications, and information technology throughout NOAA and to provide science education to help expand the pool of potential future scientists and researchers for industry, academia, and government.

NOAA Research's FY07 Budget request reflects a revised structure of its climate activities. This simplified structure is composed of five line items under the Climate Research subactivity: Laboratories & Cooperative Institutes, Competitive Research Program, Climate Operations, Climate Data & Information, and Other Partnership Programs.

These line items encompass activities formerly described under Laboratories & Cooperative Institutes, Climate and Global Change, Climate Observations & Services (including the Climate Change Research Initiative), Arctic Research, and Other Partnership Programs. This structure clarifies and better aligns research activities with their appropriate executing offices.

NOAA Research operates through a national network of OAR laboratories and other OAR and university-based research programs. Accordingly, the OAR budget activity is managed through these organizational components - OAR Research Laboratories and Cooperative Institutes, NOAA Climate Program Office, National Sea Grant College Program, Office of Ocean Exploration and Research, Office of Weather & Air Quality, and the NOAA High-Performance Computing and Communications Program. The National Undersea Research Program has been combined with Ocean Exploration, and the Arctic Research Office is now part of the Climate Program Office. With this diverse research “tool kit,” OAR provides national and international leadership on critical environmental issues and addresses environmental R&D needs of internal NOAA customers, states, industry, the Department of Commerce, and other Federal agencies.

NOAA Research Laboratories and Cooperative Institutes

OAR’s seven laboratories and thirteen cooperative institutes are charged with the mission of advancing scientific understanding of the Earth we all share. The research conducted at the laboratories is divided into three sub-activities: (1) Climate Research, which has the mission of monitoring and understanding the Earth’s climate system to predict both the potential long-term changes in global climate as well as shorter-term climate variations that are of societal and economic importance; (2) Weather and Air Quality Research, where researchers strive to provide the Nation with more accurate and timely warnings and forecasts of various high-impact weather and air quality events, such as storms and elevated levels of ozone and aerosols (particulate matter), all of which may disrupt economic productivity, impact human health, or cause loss of life and property; and (3) Ocean, Coastal, and Great Lakes Research, where the research serves to increase our understanding of coastal and marine processes for the purpose of predicting, monitoring, and mitigating the effects on ecosystems of not only climate change but also other environmental and ecosystem changes (e.g., invasive species).

The NOAA Research Laboratories administer and manage OAR programs, emphasizing theoretical and analytical studies, laboratory experiments, and field observations. The primary purpose of OAR’s research is to improve NOAA services and to provide the basis for improved decision making by policymakers and the public. The OAR laboratories collaborate closely with thirteen university-based cooperative institutes and sponsor research through contracts and grants with other universities, state and Federal agencies, and private enterprises. The seven laboratories are:

Air Resources Laboratory (ARL) is headquartered in Silver Spring, MD, with divisions in Oak Ridge, TN; Research Triangle Park, NC; Idaho Falls, ID; Las Vegas, NV. ARL carries out research on processes that affect the quality of the atmosphere. These processes include the transport, transformation, and removal of trace substances through wet and dry deposition and the exchange between the atmosphere and biological and non-biological surfaces as field crops and structures. ARL’s field and laboratory studies lead to the development of air quality simulation models. The Laboratory provides scientific advice to NOAA and other government agencies to assist with emergency preparedness for environmental problems such as nuclear mishaps, volcanic eruptions, and homeland security issues.

ARL climate research studies the biogeochemical cycles of trace substances and their effects and interactions with the radiative balance at the earth's surface. ARL operates research-grade measurement stations where the exchange of carbon dioxide and water vapor between the air and the biosphere is directly measured. ARL focuses not only on the development of deterministic models to describe the relevant processes, but also on the often-dominant role of random variability that cannot be explained by current understanding. Research in all of these areas involves physical and numerical studies, leading to the development of specialized models. The laboratory provides scientific advice to elements of NOAA and other government agencies on climate issues, and on the role of natural variability.

ARL weather and air quality research conducts physical and numerical studies of the processes affecting the quality of the atmosphere, primarily related to transport, transformation, and removal of trace substances, and uses these results to develop improved air quality forecast and assessment models. Research and develop efforts include physical and numerical studies, leading to the development of air quality simulation models for regulatory and policy purposes, and increasingly for forecasting; and improvement of understanding of processes that influence air quality, such as complex terrain, local meteorological conditions, and long-range transport; the Real-time Environmental Applications and Demonstration system (READY) as a mechanism for external users to gain access to ARL's suite of air quality forecast products; and providing relevant scientific advice to elements of NOAA and other government agencies, including those associated with homeland security.

Atlantic Oceanographic and Meteorological Laboratory (AOML) in Miami, FL, conducts research in oceanography, tropical meteorology, atmospheric and oceanic chemistry, and acoustics. AOML seeks to understand the physical and biological characteristics and processes of the ocean and the atmosphere, both separately and as a coupled system. AOML scientists study hurricanes, ocean current and temperature structures, ocean/atmosphere chemical exchanges, coral reefs, and the coastal ocean. This is accomplished by using research ships and aircraft, satellite remote sensing techniques, numerical and statistical models, radar, acoustics, and drifting buoys.

The principal focus of AOML is to contribute scientific research that may ultimately lead to improved prediction and forecasting of tropical cyclones and severe weather, better use and management of marine resources, better understanding of the factors affecting both climate and environmental quality, and improved ocean and weather services for the nation.

AOML climate research provides and interprets oceanographic data and conducts research relevant to decadal climate change and coastal ecosystems. This research includes the dynamics of the ocean, its interaction with the atmosphere, and its role in climate and climate change. On a global scale, AOML scientists, in conjunction with the PMEL and CMDL are studying the exchange of CO₂ between the ocean and the atmosphere and its effects on global warming and climate change. This research is conducted through numerous open ocean cruises aboard NOAA's research vessel, the NOAA Ship *Ronald H. Brown*. AOML hosts NOAA's Global Ocean Observing System Center (GOOS Center), which uses expendable probes and other equipment to provide ocean surface and sub-surface data to NOAA's National Centers for Environmental Prediction (NCEP) in support of seasonal to interannual climate forecasts, as well as data for decadal-scale climate research.

AOML weather and air quality research is NOAA's primary component for research on hurricanes. Their aims are to improve the understanding and prediction of hurricane track and intensity change through directed research and the transfer of research results to the operational hurricane forecast components of NOAA. Research and transition efforts include:

- The annual hurricane field program, supported by the NOAA Aircraft Operation's Center research/reconnaissance aircraft;
- Analysis of data from field programs;
- Theoretical and numerical modeling studies of hurricanes;
- Preparation of storm surge atlases and wind field diagrams;
- Assessment of interannual and decadal hurricane trends;
- Providing critical assistance to the NWS Tropical Prediction Center's forecast improvement; and
- Active participation in and support of the Joint Hurricane Testbed.

AOML ocean, coastal, and Great Lakes research scientists gather, analyze, and report coastal ocean data on land-based sources of pollution and their potential environmental impacts to the coastal environment. Scientists work in cooperation with other NOAA Line Offices, other federal, state, and local authorities, including the EPA and U.S. Army Corps of Engineers, to maximize research knowledge for use in economically and environmentally important projects in the coastal ocean such as the South Florida Ecosystem Restoration Program. AOML conducts research by monitoring coral reef ecosystems and using the data to make predictions. The Coral Reef Watch Program seeks to accomplish NOAA's goal of ecosystem forecasting and management by improving understanding of the reef ecosystem. Initiation of comprehensive long-term *in situ* coral-reef monitoring stations is intended to provide information essential for sound management decisions, and long-term planning. AOML also generates oceanographic data and conducts research relevant to decadal climate change and coastal ecosystems, such as ocean-atmosphere interactions and its role in climate and climate change. With a diverse scientific staff of physical, chemical, biological, and geological oceanographers, AOML is able to use multi-disciplinary approaches to improve NOAA's management activities.

Earth System Research Laboratory (ESRL) in Boulder, CO, represents a combination of climate and weather research capabilities aimed at undertaking the complex, interdisciplinary research increasingly needed to achieve scientific and technological breakthroughs in today's modern world, including understanding the roles of gases and particles that contribute to climate change, providing climate information related to water management decisions, improving weather prediction, understanding the recovery of the stratospheric ozone layer, and developing air quality forecast models.

ESRL has the collective goal of observing and understanding the Earth system and developing products through a commitment to research that will advance the National Oceanic and Atmospheric Administration's (NOAA's) environmental information and services on global-to-local scales. ESRL achieves this goal through its four major divisions:

Chemical Sciences Division provides the chemical-process measurements, analyses, and understanding that are needed for the Earth System Research Laboratory to address NOAA's Climate Goal (Climate Forcing) and Weather and Water Goal (Air Quality), with the aim of improving NOAA's abilities (i) to predict changes in climate, the stratospheric ozone layer, and air quality, and (ii) to deliver related science information products that address societal and policy needs.

Global Monitoring Division continuously monitors atmospheric gases, particles, and radiation across the globe to determine trends influencing climate change, ozone depletion, and baseline air quality, and to communicate the findings in usable and understandable forms.

Global Systems Division incorporates new findings in atmospheric, oceanic, and hydrologic sciences, these systems are designed to improve our understanding of climate and weather at all time scales through new observation techniques, innovative diagnostic and predictive models, advanced computational analysis, and leading-edge workstation display technology.

Physical Science Division addresses physical science questions with short- and long-term societal and policy relevance within NOAA's Climate and Weather and Water Goals, while conducting the physical process research necessary so that ESRL can help provide the nation with a seamless suite of information and forecast products ranging from short-term weather forecasts to longer-term climate forecasts and assessments.

Geophysical Fluid Dynamics Laboratory (GFDL) in Princeton, NJ, conducts cutting-edge research on many topics of great practical value, including weather and hurricane forecasts, El Niño prediction, stratospheric ozone depletion, and global warming. GFDL's goal is to understand and predict Earth's climate and weather, including the impact of human activities on climate.

GFDL's *Climate Research* mission is to conduct research to better understand natural climate variability and anthropogenic climate changes via the development and improvement of global climate models. GFDL also works cooperatively in NOAA to provide expert assessments of changes on regional, national, and global climate. To achieve its mission, GFDL conducts comprehensive long lead-time climate research fundamental to expanding the scientific understanding of the physical and chemical processes governing the behavior of the atmosphere and oceans. This research leads to state-of-art global climate models which provide a suite of climate products for decision support by policy makers. To ensure the maintenance of its climate modeling capability, GFDL supports a very large, scalable computer system that provides critical computing, storage, and analysis capabilities, as well as model development and infrastructure support. This computing program allows NOAA to leverage the world-class research staff at GFDL to advance the Nation's climate program working together with the inter-agency and academic research community.

Weather and Air Quality Research at GFDL is engaged in comprehensive long lead-time research fundamental to NOAA's mission. The goal of the Laboratory's atmospheric research is to expand the scientific understanding of the physical processes governing the behavior of the atmosphere as a complex fluid system. This system can then be modeled mathematically and their phenomenology studied by computer simulation methods. The need for short-term warning and forecast product covers a broad spectrum of environmental events, which have lifetimes ranging from several minutes to several weeks.

Efforts at GFDL are centered on the development of comprehensive numerical global climate models and the frameworks in which the models are embedded. These numerical models are used in the prediction of “short-term” atmospheric phenomena such as hurricanes and coastal storms, but may also be used to study longer-term events such as the climatology of storm tracks over the oceans. The research conducted at GFDL can be developed and transitioned to NOAA operations of numerical models used in the prediction of short-term atmospheric phenomena, including tornadoes, hurricanes, and coastal storms.

Great Lakes Environmental Research Laboratory (GLERL) is located in Ann Arbor, MI, and has a field facility in Muskegon, MI. Under the Ocean, Coastal, and Great Lakes Research line item, GLERL conducts integrated, interdisciplinary environmental research in support of resource management and environmental services in coastal and estuarine waters, with a primary emphasis on the Great Lakes. The laboratory performs field, analytical, and laboratory investigations to improve understanding and prediction of biological and physical processes in estuaries and coastal areas and their interdependencies with the atmosphere and sediments. GLERL emphasizes a systems approach to problem-oriented research to develop environmental service tools.

National Severe Storms Laboratory (NSSL) in Norman, OK, conducts *Weather and Air Quality* research to improve the accuracy and timeliness of forecasts and warnings of hazardous weather events such as blizzards, ice storms, flash floods, tornadoes, and lightning. NSSL accomplishes this goal through a balanced program of research to:

- Advance the understanding of weather processes;
- Improve forecasting and warning techniques;
- Development of operational applications;
- Transfer of knowledge, techniques, and applications to the NWS and other agencies;
- Development of the NEXRAD Doppler weather radar, the cornerstone Doppler radar network now operated by NWS offices across the United States, and the development of new radar technologies (e.g., dual-polarization and phased array radar); and
- Conduct field programs that use mobile, *in situ*, and remote observational capabilities to collect data that support theoretical research.

Pacific Marine Environmental Laboratory (PMEL) in Seattle, WA, carries out interdisciplinary scientific investigations in oceanography, marine meteorology, and related subjects. PMEL focuses on coastal and open-ocean observations and modeling to improve: (1) our understanding of the physical, biological, and geochemical processes operating in the world oceans and (2) environmental forecasting capabilities and other supporting services for marine commerce and fisheries. PMEL also supports an undersea observation and research program (VENTS) in Newport, OR.

Climate research at PMEL focuses on coastal and open ocean observations in support of prediction of the ocean environment on daily through decadal time scales. Studies are conducted to improve our understanding of the complex physical and geochemical processes operating in the world oceans, define the forcing functions and the processes driving ocean circulation and the global climate system, and improve environmental forecasting capabilities and other supporting services for marine commerce and fisheries. The internationally known laboratory conducts El Niño research which has improved climate forecasts leading to reduced loss of life and property.

The focus of PMEL's *weather and air quality* activities is to support the NWS tsunami warning centers by conducting research and development on the improvement of tsunami forecasting. NOAA develops and transfers PMEL's research results to NWS to improve forecast abilities and modeling which provides valued information to decision makers. The Tsunami Project seeks to mitigate tsunami hazards in Hawaii, California, Oregon, Washington, and Alaska through improved tsunami warnings using state-of-the-art instrument systems developed by the Laboratory's Engineering Development Division. The goal of this project is to reduce fatalities, damage, and losses caused by these natural hazards.

Ocean, Coastal, and Great Lakes Research at PMEL consists of the following ocean research programs:

- Fisheries Oceanography Coordinated Investigations (FOCI) is a collaborative research effort by scientists at PMEL and the Alaska Fisheries Science Center to improve the prediction of valuable fish (e.g. Pollock) and shellfish stocks in the Gulf of Alaska and the Bering Sea for the Alaska Regional Fisheries Councils. Forecasts of these changes provide North Pacific fisheries managers with the best available information necessary for allocating fish landings by commercial fishermen.
- The Vents Program, established in 1984, conducts research on the oceanic impacts and consequences of submarine volcanoes and hydrothermal venting. The program focuses on understanding the chemical and thermal effects of venting along the northeast Pacific Ocean seafloor spreading centers, which provides the foundation for prediction of the global-scale impact of seafloor hydrothermal systems on the ocean.

Cooperative Institutes - OAR has developed "cooperative institute" research partnerships with academic and scientific institutions dedicated to oceanic and atmospheric research. The Cooperative Institutes, also referred to as "the University Programs" are formal, long-term collaborations established under a MOU/MOA with NOAA. By design, most of the Institutes are co-located with one or more NOAA facilities to promote scientific exchange and technology transfer. The primary purpose of each Institute is to bring together the diverse resources of a research university or institution, one or more OAR laboratories, and other branches of NOAA to develop and maintain a center of excellence in research.

The OAR Cooperative Institutes include:

CIASTA	Cooperative Institute for Atmospheric Sciences and Terrestrials Applications - Desert Research Institute of the University and Community College System of Nevada, Las Vegas and Reno, NV
CICAR	Cooperative Institute for Climate Applications and Research, Columbia, NY
CICOR	Cooperative Institute for Climate and Ocean Research – Woods Hole Oceanographic Institution, Woods Hole, MA
CIFAR	Cooperative Institute for Arctic Research - U. of Alaska, Fairbanks, AK
CILER	Cooperative Institute for Limnology and Ecosystems Research - U. of Michigan, Ann Arbor, MI
CIMAS	Cooperative Institute for Marine and Atmospheric Studies - U. of Miami, Miami, FL
CIMMS	Cooperative Institute for Mesoscale Meteorological Studies, U. of Oklahoma, Norman, OK
CIRA	Cooperative Institute for Research in the Atmosphere - Colorado State U., Fort Collins, CO
CIRES	Cooperative Institute for Research in Environmental Sciences - U. of Colorado, Boulder, CO
JIMAR	Joint Institute for Marine and Atmospheric Research - U. of Hawaii, Honolulu, HI
JIMO	Joint Institute for Marine Observations - Scripps Institution of Oceanography, U. of California-San Diego and La Jolla, CA
JISAO	Joint Institute for the Study of the Atmosphere and Oceans - U. of Washington, Seattle, WA
AOSRP	Atmospheric and Oceanic Sciences Research Program at Princeton University; Princeton, New Jersey

NOAA's Climate Program Office (CPO) - NOAA's Climate Program encompasses activities formerly described within the Office of Global Programs and Climate Observations and Services Program, and Arctic Research Office. OAR's activities within the CPO are executed by multiple line offices (OAR, NESDIS, NWS), as well as through sponsored research conducted by our external partners. The goal of NOAA's CPO is to understand climate variability and change to enhance society's ability to plan and respond. This goal is being achieved in OAR through the development of integrated ocean and atmospheric observing systems, research into the forcings and feedbacks contributing to changes in the Earth's climate, improved climate predictive capability from weeks to decades, and the development of climate products and services to enhance decision making capabilities across all sectors of society. In addition, CPO serves as the focal point for NOAA's research activities in the Arctic, Bering Sea, North Pacific, and North Atlantic regions: represents NOAA on the Interagency Arctic Research Policy Committee; leads U.S. involvement in the international Arctic Monitoring and Assessment Program; and provides a point of contact between NOAA and the Cooperative Institute for Arctic Research and the International Arctic Research Center, both at the University of Alaska Fairbanks.

National Sea Grant College Program - Congress established the National Sea Grant College Program in 1966 to enhance the development, use, and conservation of the Nation's marine and Great Lakes resources. The legislation establishes a network of Sea Grant Colleges to conduct education, training, and research in all fields of marine study. It also directs that grants and contracts may be awarded to: "any individual; any public or private corporation, partnership, or other association or entity (including any Sea Grant College, Sea Grant Institute or other institution) or any State, political subdivision of a State, or agency or officer thereof" [PL 105-160]. The National Sea Grant College Program Office is located in Silver Spring, MD.

Currently there are 30 State Sea Grant programs located in virtually every U.S. coastal and Great Lakes state. Most Sea Grant programs include multiple campuses of different universities across the state.

The **Office of Ocean Exploration and Research** is comprised of the National Undersea Research Program and the Ocean Exploration Program.

National Undersea Research Program - Scientists funded by the National Undersea Research Program (NURP) conduct wide-ranging research investigations in such areas as the causes behind depletion of fisheries, the impacts of commercial fishing activity on critical habitats, and the role of undersea volcanism in coastal hazards. This program also conducts mandated studies of underwater diving techniques and equipment suitable for protection of human safety and improvement in diver performance. In FY 2006, the program is comprised of two regional National Undersea Research Centers focused on Hawaii and the Pacific, and Alaska and Polar Regions. Due to new funding levels in FY 2006, a headquarters office in Silver Spring, MD., and an east coast center, including the Aquarius Undersea Laboratory, were maintained at minimal levels.

Ocean Exploration Program – NOAA is the only Federal Agency with a dedicated Ocean Exploration Program. This program supports exploration in unknown and poorly known ocean areas, and applies 10% of the yearly budget to marine exploration and science-based education. The Ocean Exploration program works with other NOAA programs and federal agencies, as well as the academic community to identify and prioritize areas of the world's oceans that need to be explored, then funds interdisciplinary science-based exploratory missions and education activities through a peer-review process. The program works with the results obtained from these missions to further NOAA's research and marine management objectives as outlined in the NOAA Strategic Plan. The program provides direct support to several multidisciplinary expeditions per year, facilitates across NOAA program office to develop and apply data management tools and techniques to appropriately organize, archive, and disseminate data and information collected during expeditions. In FY2005 the program supported 43 projects and in FY2006 it is expected the program will support 23. There are four key objectives to the program:

- Explore unknown and poorly known areas of the ocean;
- Map the physical, geological, biological, chemical, and archaeological aspects of the oceans;
- Develop new sensors and systems for ocean exploration to regain U.S. leadership in marine technology; and
- Connect in innovative ways to stakeholders to improve the literacy of learners of all ages with respect to ocean issues.

In FY 2005 Congress directed the Department of Defense to provide NOAA with a T-AGOS class vessel and funding to convert the ship into a platform to be dedicated to NOAA Ocean Exploration missions. The ship is currently undergoing conversion, which is scheduled for completion late FY 2007. Once tested and ready for operation, the new vessel will support missions that meet the above objectives, and will complement ocean exploration missions being conducted on other vessels in other ocean basins.

Office of Weather & Air Quality - The goal of Weather and Air Quality Research programs is to: (1) provide the Nation with more accurate and timely warnings and forecasts of: (a) weather events, particularly high-impact weather events, which disrupt economic productivity and cause loss of life and property, (b) air quality, particularly ozone and aerosol (particulate matter) that impact human health, cause crop damage, and affect private sector operational planning for power generation; and (c) solar disturbances and their terrestrial effects, including hazards to satellites and disruptions of communications, navigation, and utility systems and (2) provide the scientific basis for developing public policy tools for air quality by: (a) improving the understanding and characterization of air quality (i.e., aerosol, ozone, VOC, NO_x, and SO_x); (b) improving air quality sensor technology to structure the monitoring network; and (c) developing and prototyping air quality models to forecast air quality and to perform diagnostic analysis of air quality episodes.

High Performance Computing and Communications - The Office of High Performance Computing and Communications (HPCC) supports a number of objectives in NOAA's Strategic Plan, primarily through support of IT research targeted at improving NOAA's mission and services and science education to improve global understanding of science with emphasis on the environment. The purpose of the HPCC program is to make major improvements in the Nation's ability to forecast the weather and climate and to disseminate environmental information. At the same time the program is aimed at stimulating modernization of NOAA's computationally intensive services through the use of evolving high performance computing and high-speed networking technologies. Through this program, NOAA participates as a "mission" agency in the Interagency Working Group on Information Technology Research and Development. Improvements in the accuracy and timeliness of NOAA's short-term weather warnings, seasonal forecasts, and regional and global climate predictions are heavily dependent on major advances in high-end computing power, advanced information technology, and the widespread availability of environmental data and information. Timely and responsive dissemination of NOAA's services and information requires full use of modern network and communications technologies.

Support for the NOAA Strategic Plan

OAR's activities support three Mission Goals in the NOAA Strategic Plan:

- Protect, Restore, and Manage the Use of Ocean and Coastal Resources Through an Ecosystem Approach to Management;
- Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond; and
- Serve Society's Needs for Weather and Water Information.

Activities also support NOAA's Mission Support Goal to Provide Critical Support for NOAA's Mission.

The NOAA Climate Program was rated "Moderately Effective" under the **Program Assessment Rating Tool (PART)** conducted in FY 2004. The assessment found that the program is relatively strong and has undertaken steps to improve program management and focus on results. Additional findings included: (1) NOAA Climate coordinates with other Federal agencies through the Climate Change Science Program; (2) Deficiencies in the management of NOAA's laboratory activities as identified by the NOAA Research Review Team; (3) Need to better integrate performance into budget decisions; and

(4) Program has appropriate long-term goals and annual measures which demonstrate progress. In response to these findings, NOAA has sent forward a proposal for consolidating its Boulder laboratories and implementing other management changes as recommended by the Review Team. NOAA is also developing an internal data base for tracking performance and linking it to the budget. Finally, the NOAA Ecosystem Research Program has undergone a PART review was rated "Adequate". There are two follow-up actions to be taken; (1) Assess the portfolio of research within NOAA's Ecosystem Research Program in order to clarify the role of each of the Program's components and eliminate redundancies; (2) Modify planning and management processes so that research activities meet the highest priority science needs and provide a balanced response to local, regional, and national issues.

Research and Development Investments

The NOAA FY 2007 Budget estimates for its activities, including research and development programs, are the result of an integrated, requirements-based Planning, Programming, Budgeting, and Execution System (PPBES) that provides the structure to link NOAA's strategic vision with programmatic detail, budget development, and the framework to maximize resources while optimizing capabilities. The PPBES process incorporates the President's Management Agenda and the Office of Science and Technology Policy's Research and Development Investment Criteria (relevance, quality, and performance) for NOAA's R&D programs, and leads to NOAA budget proposals that reflect the R&D investment criteria.

Significant Adjustments-to-Base (ATBs): NOAA requests an increase of 0 FTE and \$6,203,000 to fund adjustments for NOAA Research activities. Within this increase, program totals will fund inflationary adjustments for labor and non labor.

Included in the above amount is \$1,520,000 for amortized construction costs and net rent cost increases associated with the new National Weather Center on the South Campus of the University of Oklahoma. Based upon the February 2006 Beneficial Occupancy Date (BOD) of the National Weather Center (NWC), NOAA is relocating its National Severe Storms Laboratory (NSSL), Norman Weather Forecast Office (WFO), Storm Prediction Center (SPC), Warning Decision Training Branch (WDTB) and NEXRAD Radar Operations Center's (ROC) Application Branch to the NWC. This amount represents the FY 2006 NOAA requirement to fund the new building. The net total full-year requirement will be \$2.29M, beginning in FY 2007.

NOAA Research also requests the following transfers between line offices for a net change to NOAA of zero.

From Office	Line	To Office	Line	Amount
OAR	Laboratories & Joint Institutes	OMAO	NOAA Corps	-\$80,000
OAR	Ocean Exploration	OMAO	NOAA Corps	-\$80,000
NWS	TAO / PIRATA Arrays (research)	OAR	Competitive Research	+\$3,000,000

The \$160,000 transferred to OMAO completes the full year funding for two NOAA Corps Officer positions that benefit OAR (\$40,000 had been transferred in FY 2006). Also, NOAA has accepted the FY 2006 Congressional transfer of \$14,407,000 for EPP/MSI Program from the OAR budget to the NOAA Program Support budget.

Finally, OAR is internally transferring \$497,000 from the Labs and Cooperative Institutes Line Item in the Ocean, Coastal, and Great Lakes Research Subactivity to the Labs and Cooperative Institutes Line Item in the Weather and Air Quality Research Subactivity to consolidate ESRL remote sensing research under the Coasts, Estuaries, & Oceans component of NOAA's Strategic Plan for Weather and Water. This internal transfer has no net effect on the overall level of funding within OAR or NOAA.

The map below shows the locations of OAR Laboratories, National Undersea Research Centers, Cooperative Institutes, and Sea Grant College States.

